

Year 8 Term 1 Homework

Student Name: _____	Grade: _____
Date: _____	Score: _____

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This edition was printed on May 22, 2009.

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8 Year 8 Term 1 Week 8 Homework

8.1 Topic Test (Algebra)

1. Increase the sum of $12a$ and 3 by 6. _____ [5]

2. Expand $4(6a + 2) - 3(2a - 5)$. _____ [5]

3. Simplify $35a^2b \div 5a \div 3b^2$. _____ [5]

4. Simplify $5c^2 - 3c + 3c^2 - 6c + 4b$. _____ [5]

5. Simplify $4x^2y \times 3xy^2 \div 2x^3y$. _____ [5]

6. Simplify $(-5a^6)^3$. _____ [5]

7. Factorise $4a^2 + 8ab + 4b^2$. _____ [5]

8. Expand and simplify $(3x^2 - 3)^2 - (2x^2 + 6)^2$. [5]

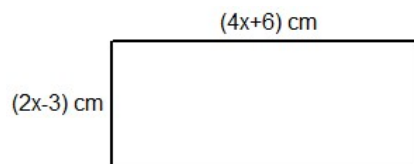
9. If $a = -5$, $b = 6$ and $c = 9$, find the value of $2a^2 + 3b - c$. [5]

10. Simplify $\frac{4x}{3} - \frac{3x}{4}$. [5]

11. Simplify $\frac{5x-5}{3} + \frac{4x+6}{5}$. [5]

12. Given $D = S \times T$, find S if $D = 357$ km and $T = 4$ hours and 15 minutes. [5]

13. Write an expression for the perimeter and area of the rectangle in terms of x . [5]



14. Given that $F = \frac{mv^2}{r}$, find the value of F when $m = 8$, $v = 3$ and $r = -12$. [5]

15. If $a = 0.15$, evaluate $2a^2 - 3a$. [5]

16. A car bought for \$2M was sold at a profit of 25%. What was the selling price? [5]

17. Simplify $\frac{x}{3} + \frac{x-2}{4}$. [5]

18. Solve $\frac{3x-1}{4} = 6$. [5]

19. Simplify $4x - 2 - \frac{2x-5}{2} + \frac{3x+2}{3}$. [5]

20. Find the pattern rule using the table given below: [5]

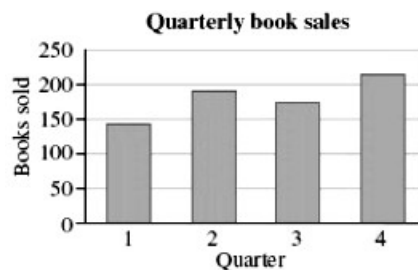
x	1	2	3	4
y	5	8	11	14

8.2 Topic 1 — Data Representation (Organising Data)

Data can be organised into a graph in order to make it easier to understand and analyse. In general, it is best to draw:

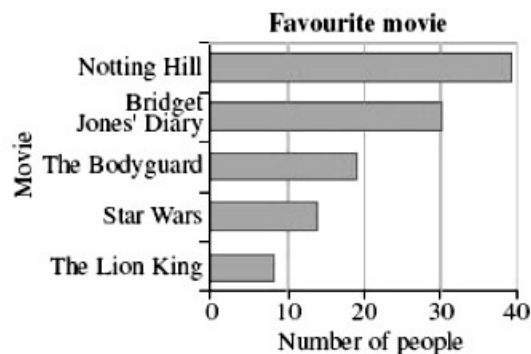
- a line graph for continuous quantitative data.
- a column graph or horizontal bar graph for discrete quantitative data.
- a sector graph, column graph, horizontal bar graph, divided bar graph, or picture graph for categorical data.

8.2.1 Column Graph as shown below:



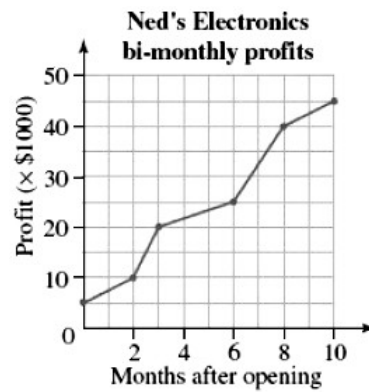
- In a column graph the data is represented by a number of vertical columns.
- The data is shown on the horizontal axis.
- The number of times each data occurs is shown on the vertical axis.

8.2.2 Bar Graph as shown below:



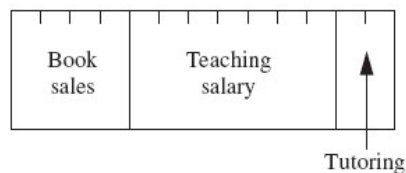
- In a bar graph the data is represented by a number of horizontal bars.
- The data is shown on the vertical axis.
- The number of times each piece of data occurs is shown on the horizontal axis.

8.2.3 Line Graph



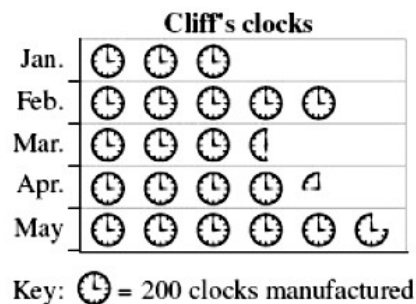
- In a line graph a number of points are plotted then joined by lines or curves.
- The trends or relationships between two variables can be shown.

8.2.4 Divided bar graph



- In a divided bar graph a rectangle or bar is divided into small rectangles or sections.
- The length of each section is in proportion to the value of the data that it represents.
- The value of the data in each section is found by measuring the length of the section then comparing it to the length of the whole rectangle.

8.2.5 Picture Graph

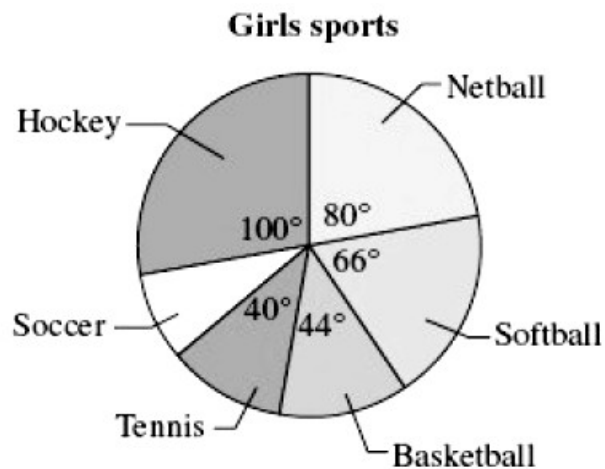


- In a picture graph easily recognisable pictures or symbols are used to represent the data.
- A key is included to explain the value of the symbol.

8.2.6 Sector Graph

- In a sector graph a circle is divided into sectors.
- The angle at the centre of each sector is in proportion to the value of the data it represents.
- The value of the data in each sector is found by dividing the angle at the centre of the sector by 360° then multiplying that fraction by the total value of the data

Exercise 8.2.1 This sector graph shows the school sport chosen by girls at a high school.



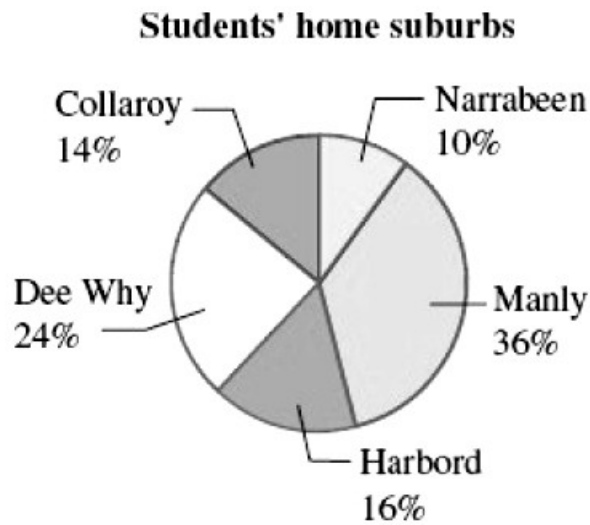
1. Do more girls play netball or softball?

2. What fraction of the girls play hockey?

3. If there are 540 girls at the school, how many play tennis?

4. If 45 girls play soccer, what angle should be at the centre of the sector?

Exercise 8.2.2 The Year 8 students at Kingscliffe High School created a sector graph showing the percentage of year group who live in each surrounding suburbs.



1. In which suburb do most students live?

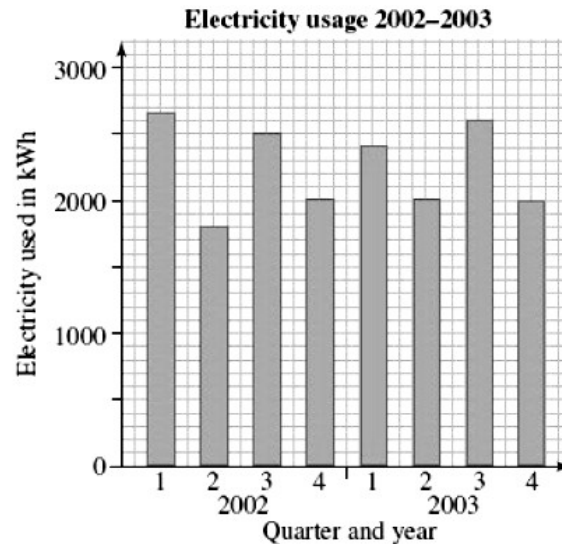
2. What percentage of the students live in Narrabeen?

3. In which suburb do $\frac{6}{25}$ of the students live?

4. If there are 150 students in Year 8, find the number of students who live in Dee Why.

5. What should be the size of the angle at the centre of each sector? (Give your answer to nearest degree.)

Exercise 8.2.3 This column graph shows the electricity usage in a household over a 2 year period. the usage is in measured each quarter in kilowatt hours (kWh). The first quarter is January – March.



1. In which quarter was the usage highest?

2. How many kilowatt hours of power were used in the first quarter, 2003?

3. Was the usage for the July – September quarter higher in 2002 or 2003?

4. Which quarters tend to have higher electricity usage?

5. Why do you think this might be?
